

# If a Tree Falls... Listening to Alberta's Forests



By Grace Wark, *AWA Conservation Specialist*

**“If a tree falls in the forest and no one is around to hear it, does it still make a sound?”**

This is a riddle for the ages. Philosophical debate has raged for nearly 300 years as to whether something really occurs if no one is there to witness it. Philosopher George Berkeley first speculated that “the objects of sense exist only when they are perceived; the trees therefore are in the garden [...] no longer than while there is somebody by to perceive them.” Berkeley, while not entirely straight forward in his explanation, followed the general stream of thought that we should question whether something exists or happens if we do not perceive it. This, in the realm of conservation, is a familiar challenge.

Many great minds have attempted to answer the riddle, providing philosophical and scientific explanations alike. From a scientific standpoint, when a tree falls in the forest it will cause a vibration, and that vibration will only become a sound when it's perceived by an ear. Sound, by definition, is the movement of vibrations through the ear canal to the eardrum, passing through the ossicles to the inner ear, then on through the cochlea. Only when the cochlea converts the vibrations into electrical signals and those signals are recognized by the brain, is a vibration considered a sound. So if no ears are there to hear it, a falling tree will make no sound – at least, so says science.

Canadian singer-songwriter Bruce Cockburn poignantly adapted the age-old query into his 1988 conservation anthem about



*Albertans have long known that the health of the watershed is directly tied to the health of the forest*  
PHOTO: © N. DOUGLAS

deforestation, *If a Tree Falls*. Cockburn extended the focus of the question from the fate of a single tree to that of forests. Was anyone hearing the forests of Sarawak, Amazonas, and B.C. fall? Cockburn called into question whether enough of us were in fact paying attention to what our forests, and the Indigenous and wildlife populations dependent on them, endured. “Cut and move on” described the industrial approach to forests, an approach that destroyed wildlife and the lives of Indigenous Peoples alike and left “brand new flood plains” and “new deserts” in its wake. That reality is too often as serious today as it was in 1988 (Brazil just released figures showing its deforestation rate to be at its highest level since 2008).

The falling tree riddle has actually been used repeatedly to shed light on conservation issues. Beyond being a catchy hook for an environmental anthem, Cockburn reminds us that the physical distance between forests, commercial logging, and urban centres often places forest management issues out of sight (or earshot), in-

creasing the possibility that they may be out of mind.

However, I believe many Albertans actually have their ear to the ground for Alberta’s forests. Many feel that increasing demands and overlapping land-use pressures demand we re-examine the way our forests are managed.

The crux of the problem is deciphering what we’re hearing and observing. Here is where what’s responsible for that falling tree matters. Feller buncher? Beaver? Wind? Mud slide? Each of these causes may tell us a range of things about the health of the forest.

What do we see and hear on a walk through the woods and how do we interpret what we record? More importantly, what are the implications for the future of Alberta’s forests?

Stand or move quietly in the forest for a moment and listen for the sound of water. Perhaps it will be the squish of a mossy carpet or the low roar of a nearby falls.

Look and listen for it because water is one of the most conspicuous indicators of for-

est health; the integrity of the watershed is inextricably tied to that of the forest. This is because of how water cycles through the landscape; first, it is intercepted by the forest canopy, then, some of it will be absorbed through the soil, and finally, it will percolate down into the river valley. Take away the forests and you remove an important filtration system, as the forests slow the flow of water and prevent it from picking up excess sediment, pollutants, and other unsavory substances. This is why a consistently murky, sediment-laden river is a telltale for an overextended forest.

Look and listen again as you approach a favourite backcountry lake. Now silence now greets you where you once heard the splash of trout. Rising water temperatures contribute to that silence. Clearcutting not only increases sedimentation into fish-bearing streams and chokes spawning habitat but it also may alter stream temperatures. This is because stream temperature emulates the sub-soil environment; fewer trees means greater sun exposure, and warmer slopes means warmer waters.



Between 2001 and 2012, Alberta lost 12 percent of its tree cover, equivalent to 4.58 million hectares of forested landscape. PHOTO: © N. DOUGLAS

Now use your imagination. Imagine first the faint sounds of a woodland caribou's broad, cloven hooves on the forest floor, followed soon by the soft pads of wolves. Is this as it should be? Where woodland caribou once had hectares upon hectares of old growth forest to help evade predators, they now traverse a landscape characterized by many linear "highways" and open spaces. Linear disturbances – roads, trails, cutlines and pipelines – fragment the forests and invite greater traffic. Where human traffic often takes the form of barreling log-hauls and rumbling weekend warriors, animal traffic comes as a hungry wolf on the trail of a disoriented caribou. While this is good news for the wolf, it alters the balance of the food web and may lead to serious declines in prey populations.

What does our record of sounds and silences tell us? Frankly, the answer isn't always straight forward. But I think it's fair to say the record signals the overdevelopment of our forests and their deterioration. This record invites us to act, ironically perhaps, by not acting on forests as much. Most de-

clines in condition could be remedied by giving our forests... more forest. A good first step would be to claw back the intensity of development and prioritize, temporally and geographically, the range of land-use we impose on the land.

Above you'll see a passing reference to deforestation in Brazil. While I wouldn't suggest that Alberta's deforestation record is as severe as Brazil's, we know that Alberta lost 12 percent of its tree cover between 2001 and 2012. This is equivalent to 4.58 million hectares of the forested landscape. We also know that timber harvest has gained serious momentum over the past century. Where in 1896 there were 30 to 40 timber permits for the Eastern Slopes, there are now 264 commercial timber permits operating in Alberta, in addition to timber allocated under Alberta's 20 Forest Management Agreements (FMAs). The lumber production trend over the last decade is upwards; in 2017 Alberta produced an average of 779.6 thousand cubic metres of lumber each month compared to a monthly average of 636.2 thousand cubic metres in 2007. This was an increase of

22.5 percent.

Combine this with declines in global and Canadian biodiversity levels and there's a powerful argument that something needs to be done. The World Wildlife Fund's *Living Planet Report Canada* reported recently that half of the Canadian vertebrate species suffered population declines between 1970 and 2014. Of that half, populations have declined a staggering average of 83 percent.

In conclusion, does it matter whether the answer is yes or no to the question I opened this article with? I think that, more importantly, we have a stewardship duty to ensure the health of our forests so that, if we're fortunate enough to stand under their canopies, we will be able to hear the symphony of sounds they offer. Healthy forests will be ones distinguished by the roar of the headwaters, the hoots of the horned owl, and the offerings of other players in the natural world.

The benefits of our forests are far-reaching and we should be loud in offering them our steadfast support. 🌲



*Our forests offer a constant stream of information. It's simply up to us to listen, and to decide what to do with what we've heard.* PHOTO: © H. UNGER